Regularization/GLM (Q6L7)

76% (16/21)

1. Overdispersion in Poisson Regression occurs when

- A var(Y|X)>var(Y)
- B var(Y|X)>mean(Y|X)
- C Variance is decreasing
- D I do not know

2. Which one of these is the measure for goodness of fit for Poisson Regression?

- A Ordinal R^2
- B Chi-square & Pseudo R^2
- C I do not know
- D There are not measure for it

3. Which one of these is the correct interpretation of the coefficient of Poisson Regression?

- A For a 1-unit increase in X, we expect a b1 unit increase in Y.
- B For a 1-unit increase in X, we expect b1 percentage increase in Y.
- C For a 1-percentage increase in X, we expect b1 percentage increase in Y.
- D For a 1-percentage increase in X, we expect b1 unit increase in Y.
- E I do not know

4. In Poisson regression...

- A The asymptotic distribution of the maximum likelihood estimates is multivariate normal.
- B The distribution of the maximum likelihood estimates is multivariate normal.
- C The asymptotic distribution of the maximum likelihood estimates is multivariate Poisson distribution.
- D I do not know

5. Pseudo R-Squared Measures are calculated based on...

- A The likelihood function
- B Chi-squared value
- C I do not know
- D Overdispersion term

6. **In the case of intercept-only model**

- A) The mean of the dependent variable equals the exponential value of intercept
- B) The mean of the dependent variable equals the intercept
- C) The mean of the dependent variable equals 0
- D) I do not know

7. **ln(lambda) = 0.6 - 0.2* female [lamda = the average number of articles] Note: e^(-0.2)=0.78**

- A) One unit increase in female brings a 0.2 decrease in ln(lambda).
- B) Being female decreases the average number of articles by 0.78 percent
- C) Being female decreases the average number of articles by 22%
- D) I do not know

8. **While running the Poisson Regression we will have never faced with the value of lambda**

- A) 0
- B) 1
- C) 2
- D) I do not know

9. **Why does not quasi-Poisson model have AIC?**

- A) Quasi-Poisson is used quasi-likelihood instead of log-likelihood estimates.
- B) Quasi-Poisson does not use iterative estimation
- C) I do not know

10. **Why Poisson regression is called log-linear?**

- A) Because we use a log link to estimate the logarithm of the average value of the dependent variable
- B) Because we use a log values of independent variable
- C) Because we use a log value of an independent variable is transformed to linear
- D) I do not know

11. In the multiple linear regression, we assume that...

- (A) The number of observations is much larger than the number of variables (n>>p)
- (B) The number of observations is slightly larger than the number of variables (n>p)
- (C) The number of observations equals than the number of variables (n=p)
- (D) The number of observations is lees than the number of variables (n<p)
- (E) It is not important
- (F) I do not know

12. The way of solving the problem of a large number of variables is...

- (A) Subset Selection & Shrinkage (Regularization)
- (B) Shrinkage (Regularization) & Maximum Likelihood estimation
- (C) Dimension Reduction & OLS estimation
- (D) I do not know
- (E) The absence of the right answer

13. The bias of an estimator (e.g. z^) equals...Hint: the OLS coefficients are unbias :)

- (A) E(z^) - z
- (B) E(z^2) - [E(z)]^2
- (C) [E(z^2) - E(z)]^2
- (D) E(z^2)
- (E) I do not know

14. Which of following is not a type of regularization:

- (A) L1 - Lasso
- (B) L2 - Ridge
- (C) Elastic Net
- (D) L3 - Passo
- (E) I do not know

15. The main idea of regularization is

- (A) To introduce a small amount of bias in order to have less variance.
- (B) To introduce a small amount of variance in order to have less bias.
- (C) To introduce a small amount of variance and bias in order to have less bias.
- (D) I do not know

16. **With which function we can show regularization in R**

- A glmnet()
- B regular()
- C lm()
- D glm()
- E I do not know

17. **How the tune of any parametr can be made**

- A using Cross validation
- B It is impossible
- C I do not now
- D using larger sample
- E only having population

18. **Elastic Net is**

- A the combination of L1 and L2 regularization
- B the combination of L2 and L3 regularization
- C is independent from other types of refularization
- D I do not know
- E not a type of regularization

19. **Regularization is used only for**

- A Poisson Regression
- B Linear Regression
- C Logistic Regression
- D any regression
- E I do not know

20. **Regularization can solve the problem of**

- A heteroscedasticity
- B multicollinearity
- C autocorrelation
- D I do not know

21. **Multicollinearity occurs when**

- A rank(X)<m (m is the number of explanatory variables)
- B $var(\varepsilon)=\sigma^2 I$
- C $E(\varepsilon)=0$
- D $cov(\varepsilon i,\varepsilon j)=const$
- E I do not know